



THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : THOMAS ECKEL  
Serial No. : 10/725,210  
Filed : December 1, 2003  
For : POLY(ESTER)CARBONATE MOLDING  
COMPOSITIONS  
Art Unit : 1712  
Examiner : David J. Buttner

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D E C L A R A T I O N

I, Thomas Eckel, residing at Pfauenstr. 51, 41540 Dormagen, Germany, declare as follows:

- 1) that I have the following technical education and experience:
  - a) I am a chemist having studied at the Phillips-Universität of Marburg, Germany, from 1978 to 1987,
  - b) I received the degree of doctor rer. nat. at the Phillips-Universität of Marburg in the year of 1987,
  - c) I am employed by Bayer AG since July 1987 in the Research Department especially handling polymer blends;
- 2) that the following tests were carried out under my immediate supervision and control:

The components given in Table 1 and explained briefly below are melt compounded in a ZSK-25 at 260°C. The test bodies are produced in an Arburg 270 E injection molding machine at 260°C.

### Components

#### Component A1

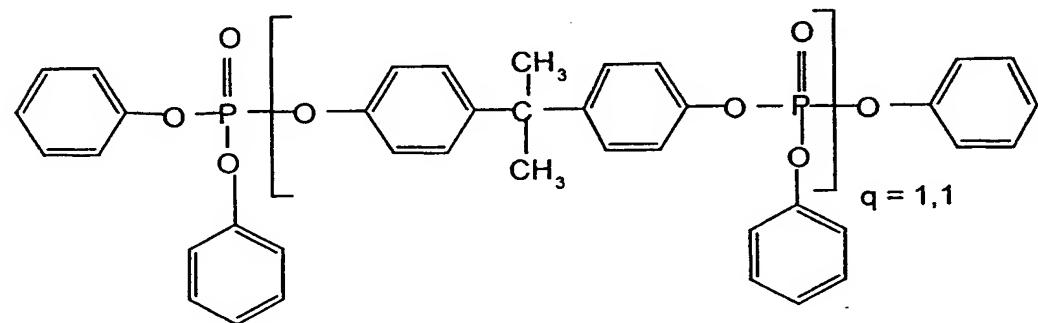
Branched polycarbonate based on bisphenol A with a relative solution viscosity of  $\eta_{\text{ref}} = 1.31$ , measured in  $\text{CH}_2\text{Cl}_2$  as the solvent at 25°C and a concentration of 0.5 g/100ml, which was branched using 0.3 mol.% isatinbiscresol in relation to the sum of bisphenol A and isatinbiscresol.

#### Component B3

Metablen® S2001, silicon-butylacrylate composite rubber grafted with methyl methacrylate, produced by Mitsubishi Rayon Co. Ltd., Tokyo, Japan.

#### Component C

Bisphenol A-based oligophosphate



#### Component C2

Resorcinol A-based oligophosphate: CR 733 of Daihachi.

### **Component D2**

Blendex® 449: Teflon master batch consisting of 50 wt.% styrene-acrylonitrile copolymer and 50 wt.% PTFE from GE Specialty Chemicals, Bergen op Zoom (the Netherlands).

### **Component E1/E2**

Pentaerythritol tetrastearate as a mold lubricant/mold release agent (E1)  
Phosphite stabiliser (E2).

The stress cracking behavior under the influence of chemicals (ESC behavior) is tested on bars measuring 80 mm x 10 mm x 4 mm. For the flame-resistant compositions, a mixture of 60 vol.% toluene and 40 vol.% isopropanol is used as the test medium. This mixture serves as a model for an aggressive detergent/degreasing agent. For the non-flame-retardant compositions, a mixture of 50 vol.% isoctane and 50 vol.% toluene is used. This mixture serves as a model for a gasoline. The test bodies are pre-strained using an arc-shaped jig and the time to break in each medium is determined as a function of the pre-strain. The minimum pre-strain at which break occurs within 5 minutes is determined.

The combustion behavior was measured to UL-Subj. 94 V on bars measuring 127 mm x 12.7 mm x 1.5 mm.

A summary of the characteristics of the compositions according to the invention or the test bodies obtained from them is given in Table 1.

**Table 1** Flame-retardant molding compositions and their characteristics

		<b>2</b>	<b>V7*</b>
<b>Components [parts by weight]</b>			
A1	PC (branched)	84.7	84.7
B3	A(Si+A)S	4.7	4.7
C	BDB	10.1	
C2	RDP		10.1
D2	PTFE master batch	0.2	0.2
E1	PETS	0.2	0.2
E2	Phosphite stabiliser	0.1	0.1
Graft modifier from B and D		4.8	4.8
PTFE from D		0.1	0.1
<b>Characteristics</b>			
ESC (Boundary fiber strain in %)		2.2	1.6
UL94 V rating		V-0	V-0

\* Reference test

The example 2 and reference example V7 in Table 1 show that polycarbonate compositions containing butadiene-free graft polymers based on branched polycarbonate and BDP-based oligophosphates have better ESC behavior than equivalent compositions containing other types of flame retardants such as RDP-based oligophosphates.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Thomas Eckel  
THOMAS ECKEL

Signed at Dormagen, this 19. day of June , 2006.